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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/901,576	07/11/2001	Kazuo Saito	K&Y-157-114	7170

20374 7590 05/01/2003

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EXAMINER
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ALEJANDRO, RAYMOND

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 05/01/2003

5

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/901,576

Applicant(s)

SAITO ET AL.

Examiner

Raymond Alejandro

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 2, 4, 6 and 8 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 3, 5, 7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☒ Certified copies of the priority documents have been received in Application No. 09/323,960.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4. 6) ☐ Other:

## DETAILED ACTION

### *Election/Restrictions*

1. This application contains claims directed to the following patentably distinct species of the claimed invention, the following species have been identified:

Species 1: claims 1, 3, 5, 7, directed to a separator having a specific water-holdability (separator 1, not using perishable additive, see specification, page 11, lines 8-16);

Species 2: claims 2, 4, 6, 8, directed to a separator having a specific pore volume (separator 2, using perishable additive, see specification, page 12, lines 5-10).

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, no claim is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to

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be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

2. During a telephone conversation with Ronald J. Kubovcik on 04/22/03 a provisional election was made with traverse to prosecute the invention of Species 1, claims 1, 3, 5 and 7. Affirmation of this election must be made by applicant in replying to this Office action. Claims 2, 4, 6, 8 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

#### ***Priority***

4. Applicant has complied with conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120. It constitutes a continuation-in-part of prior application 09/323960.

5. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 09/323960, filed on 06/02/99.

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### ***Information Disclosure Statement***

6. The information disclosure statement (IDS) submitted on 05/07/02 was considered by the examiner.

### ***Drawings***

7. The drawings filed on 07/11/01 have been accepted.

### ***Specification***

8. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. *It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," "The present invention"...*

9. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1, 5, 7 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over the JP 49-002023 publication.

The instant claims are directed to a separator wherein the disclosed inventive concept comprises the specific film on the separator surface and its water-holdability characteristic. Other limitations include the powder conductive diameter, the specific conductive material, and the specific binder material.

With respect to claim 1:

The JP'023 publication discloses a separator obtained by coating a mixture of carbon powder and a binder on a non-woven alkali resistant synthetic fibre fabric (the separator) (ABSTRACT). It is also disclosed that the thickness of the separator is 0.1 mm (100 µm) (col 4, lines 6-10).

With respect to the transitional phrase “having”, the examiner has interpreted the same as an open claim language.

As to the preamble reciting “a separator for a fuel cell”, it is pointed out that the preamble refers to intended use. That is, the claim is directed to a separator and the preamble phrase “for a fuel cell” is only a statement of ultimate intended utility.

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As to the limitation that the film has a water-holdability of 0.3 to 5.0 g per g of the film, since applicants disclose that *“the reason why the fuel cell separator (1) has sufficient hydrophilicity and water-holding property mainly at the surface is not clear, but is presumed to be that the conductive powder used in the conductive coating becomes secondary particles in the coating and these secondary particles form fine unevennesses or cracks at the surface of and/or inside the film made of the conductive coating”* (see applicants' specification, application 09/901576, page 11, lines 17-22), it asserted that having shown the separator of the prior art does have a coating comprising carbon powder and a binder on its surface, the above-mentioned characteristic, property and/or function is thus inherent as the film composition recited in the reference is substantially identical to that of the claims, and therefore, claimed properties, characteristics or functions are presumed to be inherent (**MPEP 2112. Requirements of Rejection Based on Inherency**). Thus, the prior art's separator seems to be identical except that the prior art is silent as to an inherent property, characteristic and/or function. In that, it is noted that the extrinsic evidence makes clear that the missing descriptive matter is necessarily present in the separator described in the reference, and that it would be so recognized by persons of ordinary skill. *Furthermore, since the recited film material i.e. the conductive powder and the binder covers a very large number of applicable materials which can be used therefor, it is also contended that a film (or coating or layer) comprising any combination of conductive powder and binder on the separator surface would produce a separator exhibiting the specific water-holdability property.*



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With respect to claim 5:

The JP'023 publication discloses the use of a carbon powder e.g. carbon black (ABSTRACT).

With respect to claim 7:

The JP'023 publication discloses binder materials such as polystyrene (a thermoplastic resin) and chloroprene (a rubber) (ABSTRACT).

Therefore, the claims are anticipated by the JP'023 publication. However, if the claims are not anticipated the claims are obvious as it has been held similar products claimed in terms of its property, characteristics and/or functions are obvious. *In re Best 195 USPQ 430 and In re Fitzgerald 205 USPQ 594. See rationale and/or technical reason above to reasonably support the determination that the inherent property, characteristic and/or function necessarily flows from the teaching of the applied prior art.*

13. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over the JP 49-002023 publication as applied in the immediate preceding paragraphs and further in view of McBreen 4000005.

The JP'023 publication is applied, argued and incorporated herein for the reasons above. However, the JP'023 does not expressly disclose the specific particle diameter of the conductive powder.

As for claim 3:

McBreen discloses that the particle size of the graphite is quite significant. It has been observed that particles greater than about 5 microns in diameter have relatively poor conductivity

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while particles less than about 0.5 microns in diameter produce only short-lived products (col 4, lines 15-21). McBreen prefers to use graphite having an average particle size of about 2.5 microns (col 4, lines 26-32). The graphite is a powdered graphite (col 4, lines 5-6).

In view of the above, it would have been obvious to one skilled in the art at the time the invention was made to use the conductive powder having the specific particle diameter of McBreen in the conductive powder of the JP'023 publication because McBreen teaches that it has been observed that particles greater than about 5 microns in diameter have relatively poor conductivity while particles less than about 0.5 microns in diameter produce only short-lived products. Thus, since the claimed powder is a conductive one, those of ordinary skill in the art would envision to use the particular sized graphite powder of McBreen because his sized graphite produces a powder material having good conductivity. Furthermore, McBreen also teaches that an advantage of using powdered graphite is that the powdered graphite is totally inert to the cell environment, lightweight, highly conductive and inexpensive.

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This prior art is pertinent because it was cited in an European Search Report.

However, the examiner did not find them fully relevant for the following reasons: a) the WO 95 21465 document discloses an electrode containing a carbon fiber paper coated with a mixture of binder and metal particles, however, the instant claims are directed to a separator per se having a specific film; b) the JP 63294610 document discloses a separator wherein the separator body *per se* is made from specific materials, however, the instant claims are directed to *a separator* having

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*a film* comprising specific materials on the surface; c) the JP 59046763 document discloses a separator-side layer and an electrode-surface layer made from specific materials wherein the separator body *per se* is made from specific materials and although the separator-side layer has an electrode-surface layer thereon, the electrode surface layer (which might be considered the film) comprises a carbon fiber mixture only, that is, at least no binder as well as conductive powder are disclosed; d) the JP 4236940 document discloses an electrode pad having specific constituents, however, the instant claims are directed to a separator *per se* having a specific film; e) the JP 9320577 document discloses an electrode comprising specific paste materials, however, the instant claims are directed to a separator *per se* having a specific film; f) the JP 10140141 document discloses an antistatic material obtained by conducting an antistatic treatment by using a conductive microgel dispersion containing a conductive polymer, however, the instant claims are directed to a separator *per se separator* having *a film* comprising specific materials on the surface i.e. a conductive powder and a binder; g) the JP 10326631 document teaches an electrode comprising specific materials, however, the instant claims are directed to a separator *per se* having a specific film.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (703) 306-3326. The examiner can normally be reached on Monday-Thursday (8:30 am - 7:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on (703) 308-2383. The fax phone numbers for the

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organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Raymond Alejandro  
Examiner  
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A handwritten signature in black ink, appearing to be 'RAM', written over the printed name of the examiner.